

PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

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ORDINARY MEETING.

WEDNESDAY, 1st MAY, 1957, at 5.30 p.m.

AGENDA.

1. Confirmation of the Proceedings of the Ordinary Meeting held on 3rd April, 1957.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 15].
6. Admission of Fellows.
7. Papers accepted for publication in the *Transactions*.
8. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

Note.—To avoid congestion in the Library and to enable exhibits to be displayed to greater advantage, a table has been placed in the meeting-room for this purpose. Fellows are asked to place their exhibits on this table, with a suitable explanatory note, as soon as possible on the afternoon of the meeting, so that they are available for inspection there before the meeting opens.

9. Communications.

Le monde sonore des sauterelles

A film in colour, with sound. Commentary in English.

(40 minutes.)

The film was made during the years 1954-55 by M. R. G. Busnel, Director of the Laboratoire de Physiologie Acoustique of the Institut National de la Recherche agronomique, Jouy-en-Josas, partly at Jouy-en-Josas, and partly at Palavas-les-Flots, near Montpellier. The commentary is spoken by Madame Busnel.

The principal sequences are those dealing with the sound behaviour of *Ephippiger* species (Orthoptera: Ephippigeridae). Attraction of females in nature to the singing males is first shown, under varying conditions (distance, experimental blinding), followed by a more detailed study of the modifications of behaviour as the female gets closer to the male, including his "tremulation" response when she is near enough for the plant to transmit vibrations due to her movements (first described by Faber, 1953, *Laut-und Gebärdensprache bei Insekten* (Orthoptera), Stuttgart); this tremulation appears from now on to be the main orientation message for the female.

Very detailed courtship sequences follow, showing the transfer of the spermatophore and its subsequent fate, the effect on the behaviour of the male, and on the condition of the gonads as demonstrated by dissection.

Studies of responses to various artificial sound-stimuli (Galton whistles and bird-calls) show the females attracted over considerable distances to climb on the person of the experimenters (R. G. Busnel and B. Dumortier), and re-orienting accurately when the position of the stimulus is changed. Experiments by W. Loher, following the precedent of Weih on *Chorthippus biguttulus* (L.) (Acrididae), show the same sort of response in this species to a "trrr . . ." of the human tongue, lips and pharynx; but here it is the male which responds, by singing and approaching in alternation with the experimenter's signal, again climbing on to his person.

In the search for the effective sign-stimuli present in the artificial signals, Galton whistles and electronic pure-tones are shown to be ineffective upon *Ephippiger* if their intensity rises and falls *gradually*. For effectiveness, the beginning or ending of the wave-train—or both—must exhibit a sharp change of intensity between zero and the maximum (a transient); this then is an essential sign stimulus for this species.

The film closes with studies of phonokinesis (non-oriented reactions to sounds) in various insects under various conditions of mutilation.

TEA will be served in the Library before the meeting.

NOTICES.

Provision of refreshments after Ordinary Meetings.

Coffee and biscuits will be available in the Library after the meeting on payment of one shilling per person. Fellows intending to stay for these refreshments are asked to sign the list beside the Attendance Book before 5.30 p.m.

The Library will continue to be closed at the end of the meeting.

Forthcoming Ordinary Meetings.

Preliminary notice is given below of the principal papers to be read at the next two Ordinary Meetings.

5th June, 1957.

Dr. H. E. Hinton.—The function of the tissue isolated in the pupal gill of a Tipulid at the pupa-adult moult.

3rd July, 1957.

(1) **Professor O. W. Richards.**—Predacious insects on broom.

(2) To be arranged.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 3RD APRIL, 1957.

Mr. W. V. HARRIS, Vice-President, in the Chair.

Present, 68 Fellows and 13 Visitors.

Mr. Harris announced that the President was prevented by illness from attending the meeting. It was unanimously agreed that an expression of the Society's good wishes for his recovery be conveyed to Professor Richards.

The minutes of the Ordinary Meeting held on 6th March were confirmed and signed by the Vice-President.

The names of the following candidates for election were read for the first time : Mr. Jagdish Parshad Aggarwal, M.Sc. ; Miss Jean Margaret Davies, B.Sc. ; Mr. Benjamin A. Foote ; Mr. Carroll B. Knowlton, Jr. ; Mr. Stuart Edmund Neff ; Mr. Raghava Rao Nyayapati ; Mr. Norman Karl Sylvester, B.Sc. ; and Mr. Michael James Tyler.

For the second time (taken as read) : Mr. Brian Robert Baker, B.Sc. ; Mr. Sidney Herbert Blunt ; Mr. Deb Kumar Choudhuri, M.Sc. ; Mr. Michael Frederick Claridge, B.A. ; Mr. Lionel Ray Cole ; Dr. Giovanni De Lotto ; Mr. Rennie Friendship, B.Sc. ; Mr. Peter Waller Hanney, B.Sc. ; Mr. Leslie Hender ; Mr. Nicholas David Jago ; Dr. W. J. Le Quesne ; Mr. Albert George Long, M.Sc. ; Mr. Graham Anthony Matthews ; Mr. Francis Anthony Noble ; Mr. Ronald George Pearson ; Dr. J. Risbec ; Mrs. Joy Opal Irene Spoczynska ; and Mr. Richard Underwood.

The Secretary read the names of the following newly elected Fellows of the Society : Mr. Gordon Leonard Ayre, Entomology Laboratory, Box 179, Belleville, Ontario, Canada ; Mr. Robert Herbert Carcasson, P.O. Box 658, Nairobi, Kenya Colony ; Mr. Christopher Derek Green, 45, Upper Sutton Lane, Heston, Hounslow, Middlesex ; Mr. John C. Moser, Department of Entomology, Cornell University, Ithaca, New York, U.S.A. ; Mr. Thomas Risley Odhiambo, Department of Agriculture, Kawanda Research Station, P.O. Box 265, Kampala, Uganda ; Mr. Thomas Hugh Pennington, 4, Sea View, Scotforth Road, Lancaster ; Mr. Robert Dennis Pope, 82B, Burnt Ash Hill, Lee, London, S.E.12 ; Dr. Hywel Roberts, B.Sc., Ph.D., Greystones, Woodfields, Dursley, Glos. ; Mr. Brian Michael Swan, 10, St. Michael's Road, Maidstone, Kent ; and Mr. Paul Ernest Sutton Whalley, B.Sc., Kawanda Agricultural Research Station, P.O. Box 265, Kampala, Uganda.

Thanks were voted to donors of gifts to the Library since the last meeting.

The Secretary, on behalf of **Mr. D. G. Sevastopulo**, made the following communication arising out of the comments made by Dr. P. M. Sheppard at the meeting on 16th January, in the course of the discussion following the paper by himself and Dr. C. A. Clarke on the genetics of some mimetic forms of *Papilio dardanus* Brown and *Papilio glaucus* Linn.

"*Sex-controlled genes in the Lepidoptera.* In *Proc. R. ent. Soc. Lond.* (C) 21 : 51, Dr. Sheppard is quoted as saying 'Therefore it might be that only sex-controlled genes with expression in the female were able to survive'. This may be the case in the Rhopalocera, but it definitely is not in the Heterocera. For example, both the Indian *Dasychira mendosa* Hbn. and the African *Orgyia basalis* Wlk. have several male forms but only one female, which differs from all the males; on the other hand, *Dasychira daphne* Hering, in which the sexes are normally alike, has a sex-controlled form confined to the female. A case even more difficult to explain is *Dasychira georgiana* Fawc., which has a sex-controlled larval mutant confined to the female sex."

Dr. C. A. Clarke and Dr. P. M. Sheppard had replied jointly as follows :

"We were greatly interested in Mr. Sevastopulo's remarks and his data nicely illustrate the point we were trying to make.

"In butterflies it is the females that are usually polymorphic because visual stimuli are important in courtship and abnormal males would be likely to be at a disadvantage. In moths, on the other hand, where stimulus is olfactory, appearance does not play an important part. Consequently, sex control of the forms is less common and when it does occur the polymorphism is about equally likely to be confined to either the males or the females."

Mr. N. D. Riley said that the mention of the *Orgyia* species by Mr. Sevastopulo reminded him that the genus included the common British Vapourer Moth which in this country is a day-flying species.

The Hon. Miriam Rothschild exhibited a specimen of the African Hawk Moth *Acanthosphinx gussfeldti* (Dewitz), a species with highly developed tibial spurs with which Loveridge¹ claims it inflicts "unexpectedly sharp pricks."

Dr. D. J. Lewis described small pits on the abdominal cuticle of *Simulium damnosum* Theobald and other Simuliidae, which do not appear to be associated with sense organs or points of attachment of muscles. They are formed long before the adult emerges from the pupa, at points where hard parts of the pupal cuticle and adult structures press on soft areas of the adult integument.

Dr. P. S. Corbet gave a paper, illustrated by coloured photographs, on freshwater entomology in the lakes and rivers of East Africa, an abstract of which appeared on pages 5-6.

In the discussion which followed, Baron C. G. M. de Worms referred to the lunar periodicity mentioned by Dr. Corbet. He recalled that when visiting East Africa he had himself been impressed by the periodicity in occurrence of Ephemeridae, which appeared in large numbers at full moon.

The Hon. Miriam Rothschild expressed surprise at Dr. Corbet's remarks on the paucity of insect fauna of the water lilies near the lake shore. Dr. Corbet replied that this was no doubt explained by the fact that it occurred in Lake Victoria near the papyrus layer, where the insect fauna was noticeably sparse.

¹ Loveridge, A., 1957, *Tomorrow's a holiday*, pp. 48-49 (Panther edition).

The Editor, referring to Dr. Corbet's remarks on the insect contents of the stomachs of young crocodiles, enquired how long the initial terrestrial stage of their life lasted, to which Dr. Corbet replied that the observations he had been able to make did not provide an answer. He also said, in reply to an enquiry by Dr. Hinton as to whether the insectivorous habits of crocodiles were well known, that he knew of only one published paper—that by H. B. Cott in the *Uganda Journal* [1954, 18 : 1-12].

Dr. Lewis remarked that young crocodiles were known to spend a long time away from water. He also commented on the dense columns of Chironomidae shown in Dr. Corbet's photographs. These insects were very troublesome further down the Nile at Khartoum.

Mr. E. S. Brown enquired what groups of insects were most frequently taken in mercury vapour traps round Lake Victoria. Dr. Corbet replied that the order of abundance was roughly : (1) Chironomids, Chaoborids ; (2) Mayflies, especially Baetidae ; (3) Trichoptera ; (4) Corixids, Belastomatids. Crepuscular butterflies also appeared at the light.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 5th June at 5.30 p.m.

ADDITIONS TO THE LIBRARY.

Presented

- Becker, E. C. Revision of the Nearctic species of *Agriotes* (Coleoptera : Elateridae). *Canad. Ent.* 88, Suppl. 1 : 101 pp. 1956. [Systematic Entomology Unit, Ottawa.]
- Beirne, B. P. Leafhoppers (Homoptera : Cicadellidae) of Canada and Alaska. *Canad. Ent.* 88, Suppl. 2 : 180 pp. 1956. [Systematic Entomology Unit, Ottawa.]
- British Museum (Natural History). *Ruwenzori Expedition, 1934-35*. Vol. II, No. 9. *Trypetidae*, by H. K. Munro. 8vo. London, 1957. [Trustees of the British Museum.]
- Brown, W. J. The New World species of *Chrysomela* L. (Coleoptera : Chrysomelidae) *Canad. Ent.* 88, Suppl. 3 : 54 pp. [Systematic Entomology Unit, Ottawa.]

Purchased.

- Stichel, W. *Illustrierte Bestimmungstabellen der Wanzen*. II. *Europa*. Vol. 1, hft. 17 ; Vol. 4, hft. 1. 8vo. Berlin-Hermsdorf. 1957.
- Walsh, G. B., and Remington, F. C., eds. *The Natural history of the Scarborough district*. Vol. II. *Zoology*. 8vo. Scarborough. 1956.

In addition, separates have been presented by the Director, E.A.T.R.O., Tororo ; Colonial Termite Research Unit ; East African Virus Research Institute ; Dr. C. L. Remington ; Capt. D. B. Baker ; Professor V. B. Wigglesworth ; Dr. D. S. Kettle ; Rev. C. E. Tottenham ; Dr. B. P. Beirne ; Dr. W. J. Le Quesne ; Dr. J. L. Cloudsley-Thompson ; Anti-Locust Research Centre ; Dr. C. H. Andrewes ; Mr. N. D. Riley ; Dr. W. Peters ; Mr. P. A. Glick ; Mr. P. D. Gabbutt ; Dr. J. J. Steyn ; Entomology Division, Ministry of Agriculture, Tolworth ; and the Entomology Laboratory, Department of Agriculture, Belleville, Ont., Canada.

NOTICES

In addition to the *Transactions and Proceedings* (Series A, B, and C), the following publications are available on application at the Society's rooms:—

THE GENERIC NAMES OF BRITISH INSECTS, WITH CHECK LISTS OF THE SPECIES, prepared by the Committee on Generic Nomenclature of the Royal Entomological Society of London with the assistance of the Department of Entomology of the British Museum (Natural History):—

Part 1. Recommendations relating to the publication of the Committee's Reports								Price	
2.	Rhopalocera	3s.	6d.
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8.	Hemiptera Heteroptera	39s.	0d.
9.	Coleoptera Staphylinidae	40s.	0d.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS.

The Society has undertaken the issue of a series of publications intended to provide illustrated Keys to the whole of the British Insect Fauna so far as this is possible.

It is proposed to cover this field in a series of ten volumes, arranged as follows:—

I. Part 1. General Introduction.	Part 9. Ephemeroptera.
2. Thysanura.	10. Odonata.
3. Protura.	11. Thysanoptera.
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5. Dermaptera and Orthoptera.	13. Mecoptera.
6. Plecoptera.	14. Trichoptera.
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8. Anoplura.	16. Siphonaptera.
II. Hemiptera. III. Lepidoptera. IV and V. Coleoptera.	
VI. Hymenoptera : Symphyta and Aculeata.	
VII. Hymenoptera : Ichneumonidea.	
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- Vol. IV, Part 3. Coleoptera, Hydradeptera. By F. Balfour-Browne. Price 6s. plus postage.
- Vol. IV, Part 8a. Coleoptera : Staphylinidae (part). By C. E. Tottenham. Price 15s. 0d. plus postage.
- Vol. V, Part 7. Coleoptera : Coccinellidae and Sphindidae. By R. D. Pope. Price 2s. 6d. plus postage.
- Vol. V, Part 9. Coleoptera. By F. D. Buck. Price 6s. plus postage.
- Vol. V, Part 12. Coleoptera : Cerambycidae. By E. A. J. Duffy. Price 3s. 6d. plus postage.
- Vol. V, Part 15. Coleoptera, Scolytidae and Platypodidae. By E. A. J. Duffy. Price 3s. 6d. plus postage.
- Vol. VI, Part 2a. Hymenoptera : Symphyta (part). By R. B. Benson. Price 10s. 0d. plus postage.
- Vol. VI, Part 2b. Hymenoptera : Symphyta (contd.). By R. B. Benson. Price 15s. 0d. plus postage.
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- Vol. IX, Part 2. Diptera, Nematocera : Families TIPULIDAE to CHIRONOMIDAE. By R. L. Coe, Paul Freeman and P. F. Mattingly. Price 20s. 0d. plus postage.
- Vol. X, Part 1. Diptera : Syrphidae. By R. L. Coe. Price 17s. 6d. plus postage.
- Vol. X, Part 4a. Diptera, Cyclorrhapha (part). By F. I. van Emden. Price 20s. 0d. plus postage.

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STYLOPS, a Journal of Taxonomic Entomology.

1932-1935. Vols. 1-4 (all issued). Price £2 3s. 0d. each; to Fellows £1 12s. 9d.

HÜBNER: A BIBLIOGRAPHICAL AND SYSTEMATIC ACCOUNT OF THE ENTOMOLOGICAL WORKS OF JACOB HÜBNER AND THE SUPPLEMENTS THERETO. In 2 vols. By Francis Hemming. Price: Vol. 1. 605 pp. £1 15s. 0d.; Vol. 2. 275 pp. 15s. 0d.

THE HISTORY OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1833-1933. By S. A. Neave, assisted by F. J. Griffin. Price 10s. 6d.

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